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THE IMPACT OF CHANGING SUPPLY-AND-DEMAND MARKET STRUCTURES ON COMMODITY PRICES AND EXPORTS OF MAJOR INTEREST TO DEVELOPING COUNTRIES

Report by the UNCTAD secretariat

Executive summary

This paper describes key developments (demographic changes, technological progress, changing domestic and international market structures, and the changing nature of consumer demand) which are affecting commodity markets, and discusses what these developments imply for the process of commodity price formation and the benefits that developing countries can draw from their commodity sectors. Among other things, it is found that in response to declining margins in international trade, international commodity trading houses, which account for a major part of international trade, have become fewer, bigger and more diversified across the range of commodities, and more vertically integrated upstream to the farmers' level and downstream in transport and processing. Although ultimately this makes local markets more efficient, local farmers and traders are often poorly equipped to deal on an equal footing with these large trading houses, particularly after the abolition of state marketing boards in many countries. Stimulating at a national level the same developments which have reduced margins in international trade (namely widening access to information and growing efficiency of markets, including for credit provision) would partly allow this imbalance to be redressed.

It is stressed in the paper that, after years of heavy government intervention, new market institutions do not emerge from one day to the next, but need to be promoted and nurtured. Various policies which may merit consideration are discussed. Furthermore, the paper notes that many of the fundamental forces which shape the market, and will continue influencing it in the years to come, are still poorly understood; several issues on which further research and analysis may be worthwhile are listed.

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CONTENTS

Chapters		Paragraphs
INTRODUCTION		1 - 3
I.	CHANGES IN MARKET STRUCTURES	4 - 39
	A. The impact of demographic developments	4 - 5
	B. The impact of technological developments	6 - 12
	C. Changes in domestic market structures	13 - 17
	D. Changes in international market structures	18 - 31
	E. Meeting the exigencies of the market place	32 - 35
	F. Conclusion	36 - 39
II.	CHANGES IN PRICE FORMATION SYSTEMS	40 - 46
	A. The increasing speed of price adjustments to market developments	40 - 44
	B. The importance of reference prices	45 - 46
III.	SOME POLICY IMPLICATIONS AND QUESTIONS	47 - 52

INTRODUCTION

1. At its third session, in October 1998, the Commission on Trade in Goods and Services, and Commodities, decided to convene an expert meeting on "the impact of changing supply-and-demand market structures on commodity prices and exports of major interest to developing countries" (TD/B/COM.1/22, para.83). This paper has been prepared by the UNCTAD secretariat for the expert meeting.

2. Industry and market structures have an often underestimated influence on commodity price formation, and on the benefits that developing countries and countries with economies in transition can draw from their commodity sectors. UNCTAD documented the industry and market structures for many key commodities from 1971 to 1984. Since, relatively little work by UNCTAD or by others has been published on this issue. Nevertheless, industry and market structures have been changing, which has transformed the way that the commodity economy is working, with implications for commodity policies.

3. This paper describes the major developments in industry and market structures over the past decade or so, and their consequences. After discussing the impact of changes in the external environment (because of demographic factors and technological progress), changes in domestic and international market structures are analysed. Changes in price formation processes are discussed next, with some attention paid to the vulnerability of economies to commodity sector shocks. The concluding chapter identifies implications for commodity policy, with an assessment of policy actions which could mitigate negative effects that changing market structures may have on developing countries and countries in transition; and also identifies some of the open policy questions which experts may wish to address.

Chapter I

CHANGES IN MARKET STRUCTURES

A. The impact of demographic developments

4. Demographic factors have an impact on market structures, influencing not just the quantity and location of supply and demand, but also the mechanisms that are used to meet demand. There are two major demographic effects on market structures:

(a) Demand for certain commodities grows faster than world population. Rising affluence brings with it a change in consumption packages (see table 1), and in particular increasing demand for meat intensifies the pressure to grow fodder. Land and water resources are thus becoming scarcer, putting pressure on Governments to create an efficient environment to deal with these scarcities;

(b) There is a continuous move towards urbanization. This leads to longer distances between producers, processors and consumers, greater consumption of processed foods, and a greater propensity on the part of consumers to buy brand products (which, compared to non-branded products, are relatively often imported). An efficient distribution system becomes of prime importance. Infrastructure must be able to support the requirements of the new commodity trading systems: transport systems must be well organized, the wholesale marketing infrastructure needs to be good (e.g. there must be cold storage facilities), services need to be reliable, and controls and inspection become more important. Governments are often not well placed to supply some of these sophisticated services, so the private sector has to be given the flexibility to develop.

Table 1
Typical food consumption structures at varying income levels

Annual per capita income	Calories consumed per day	Composition of calory supply
US$ 300	2,000	Two thirds of calory supply comes from roots, pulses and cereals. Food is received raw and largely unprocessed.
US$ 3,000	3,000	Less than half of calory supply comes from roots, pulses and cereals. Much food is received in processed, prepared and packaged form.
US$ 30,000	3,400	Fish, meat, milk and eggs provide more calories than roots, pulses and cereals combined. Services, convenience and customization become important in food supply.

Source: Robbin S. Johnson, Food policy in APEC, Institute of International Economics, Special Report 9, Washington, October 1997.

5. Another impact of demographic and economic changes is that trade flows are changing in direction and composition. For developing countries, North-South trade remains predominant, but South-South trade in commodities is growing relatively fast. To some extent, technological developments support this shift in trade flows (in particular, the improvements in telecommunications and information technology, as well as the growing efficiency of international transport logistics).

Regional integration schemes also play a role. However, the institutional framework for South-South trade is still somewhat weak, so developed country banks and trading houses continue playing a crucial role.

B. The impact of technological developments

6. Technology pervades modern society, having an impact on exploration, production, transport, processing, marketing and distribution, and information.

7. Technological improvements have facilitated the identification of minerals and oil reserves, and even of fish stocks, and have enabled the profitable exploitation of even relatively small reserves with poor characteristics and in difficult locations. The result of this, and of improvements in country investment policies, has been that the production of these commodities is becoming geographically more diversified (with at times a major impact on countries where new exploitable reserves are identified).

8. On the production side, technological developments are continuously reducing the production costs of commodities. This is an important factor behind the declining trend of commodity prices, as commodity production takes place in a fairly competitive environment. In contrast, the costs of marketing and distribution do not seem to be very elastic, and it would appear that much of the productivity gains achieved are not reflected in consumer prices. In the case of minerals and fuels, technological developments have made it easier to adapt production to price increases (but there is resistance to cutting production in response to price falls); as a result of this, and of the improvement of market transparency, price spikes have become of much shorter duration than in the earlier decades.

9. Technology is of growing importance to the development of commodity demand. Bio-technology can change the landscape of competitive growing locations; ceramics and glass are replacing metals in many applications; improved processing machinery can bring the importance of quality for raw materials down (for example, this is putting pressure on the premiums for long-staple cotton over standard cotton), but makes it more important that supplies consist of known and consistent quality; and artificial flavourings threaten the position of certain commodities (e.g. vanilla and fine-flavoured cocoa). Technology can also make certain trading mechanisms redundant: for example, the development of high-tech grading equipment for cotton has made grading by visual inspection much less relevant. At a more complex level, open-outcry commodity exchanges are losing ground to electronic ones.

10. One particular aspect of technological development is related to the developments in international transport. The cost of international shipping has fallen drastically over the past decade, in particular because of containerization and inter-modal transportation. This changes the economics of international trade in general, but also the relative costs of transporting various kinds of commodities. For example, the development of bulk transport techniques for cocoa has made transport much cheaper - but only for cocoas that are transported in bulk. In practice, many processors are willing to sacrifice quality in order to save on transport costs. This will erode the premiums paid to producers for higher-quality cocoa.

11. An example of the impact of information technology on market structures can be found in the Philippines' maize sector.[1] Under the Electronic System for Trading in Agriculture managed by the National Food Authority (NFA), producers of maize throughout the country can sell their products directly to feed millers and other users in Manila. The farmers can quote a price after depositing stocks in a Government-owned warehouse, which is then (after adjustment for storage and transfer costs to Manila) relayed to the NFA office in Manila. This office also receives bids from prospective buyers, and if the bids and offers match, the NFA delivers from its warehouses in Manila. It can then transfer the stocks from its provincial warehouse to Manila at the most opportune time. This scheme incidentally also shows how a traditional government agency with a dominant involvement in food marketing, distribution and storage can be transformed into a facilitator of private trade. In Brazil as well, an electronic trading system, this time set up by the Banco do Brasil and the country's commodity exchanges, allows farmers direct access to the national market place. Such electronic systems can easily become the backbone for the provision of further services (such as input supply, credit, insurance and price risk management) to farmers, while they also have the potential to be extended to foreign buyers.

12. The increasing availability of information and the development of the Internet has made it easier for developing countries to move into the production of non-traditional commodities and manufactures. Producers and traders can more easily find price information, as well as information on production techniques and ways to meet sanitary and phytosanitary requirements. They can also more easily identify and communicate with buyers (even the investment in video links, enabling potential buyers to visually inspect the product, amounts to no more than a few hundred dollars).

C. Changes in domestic market structures

13. In many countries, government control over the commodity sector has been substantially reduced over the past decade. This has not been without impact on industry and market structures. As noted by one industry observer, and just to give one fairly typical example, "liberalization of the cocoa sector in West Africa has resulted in sharply increased concentration in the export sector, with a tendency for European grinders and trading houses to integrate backward into the origins, either directly or through agent relationships. (...) Two factors drive this concentration. First, the trend towards bulk transportation of cocoa necessitates collection into large shipments. (...) The second factor is access to finance."[2] Overall, this has led to a fall in the percentage of the international market value of commodities retained in the country; whether this effect is offset by a more efficient and equitable use of the part remaining in the country requires further study.

14. Agricultural liberalization in many developing countries has created new opportunities and new challenges for private sector actors, but also new difficulties, especially for smallholder farmers and for local traders. In an environment of structural adjustment programmes and liquidity pressures on the Government, banks and the private sector, price controls have been disbanded, government entities involved in input supply or commodity marketing abolished, agricultural credit systems liberalized, and import licensing and foreign exchange controls reduced.

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[1] R.Q. Montemayor, "Impact of changing supply-and-demand market structures on commodity prices and exports in the Philippines", paper prepared for the Expert Meeting.

[2] Christopher L. Gilbert, *Cocoa market liberalization, its effects on quality, futures trading and prices*, The Cocoa Association of London, September 1997.

15. In principle, liberalization and deregulation should improve the share of export prices received by farmers (although whether or not this results in a gain in absolute terms will depend on the evolution of export prices), and in some markets (e.g. coffee and cocoa) this appears to have occurred in the early post-liberalization years.[3] Nevertheless, farmers face many new challenges in learning to deal with a liberalized market. These include a lack of possibilities to manage their exposure to world market price risks and to hold products in storage to benefit from seasonal price increases; a lack of market information about alternative markets and prices in these markets; and a lack of working capital exacerbated by poor access to credit (in part as a result of the widespread inability of local banks to provide warehouse receipt finance). As to traders, in the first years of liberalization, the roles of the former government marketing boards were generally taken over by a range of local traders. However, these traders were rapidly replaced by international trading companies or their agents. Among the reasons for this are the relatively high cost of credit for these local traders, and their difficulties in using risk management techniques.

16. Commodity imports as well have been privatized in many countries. The new private importers face problems similar to those experienced by local exporters: a lack of marketing skills and capacity to obtain and analyse market information, and poor access to credit and price risk management tools. International traders have often responded to the changes in import structures by gaining a larger control of the distribution system, up to the level of in-country depots and warehouses. At the national level, one concern is how to protect consumers against import price shocks for such crucial commodities as oil products and cereals; more work on market-based safety nets is needed to formulate appropriate policy responses to this problem.

17. A side effect of liberalization is that services to the commodity sector are increasingly being provided by foreign companies, reducing the share of the export price which remains in the producing country. The reasons for this are the following:

(a) As foreign companies go down into the marketing chain, they will rely on their traditional (Western) counterparties for insurance, and partly also for logistical services. In contrast, state companies and local private companies relied more commonly on local service providers.

(b) As financing techniques become more complex, the banks involved in commodity financing need to improve their sophistication. Although efforts are being made by institutions like the African Export-Import Bank, in many parts of the world local banks are lagging behind international ones in developing the necessary structured finance skills. If no remedial action is taken, financing will be more and more the responsibility of foreign banks and trading companies, who will reap the margins that go with such financing.

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[3] This is the finding of several studies on coffee and cocoa which focused on the first years after liberalization and deregulation, when competition among buyers was very strong. However, as described in this paper, within a few years after the opening up of trade in these commodities to the private sector, competition was generally much reduced as local companies went out of business and international companies increased their influence. As is noted in a FAO paper: "It can generally be concluded that the impact of liberalization on farmers has been positive in terms of farmgate prices. Nevertheless, this increase may be offset in the medium to long run by lower prices because of a general lowering of product quality, increased world production as a consequence of liberalization and, possibly, reduced competition owing to a trend towards concentration of trading in the hands of a limited number of companies." (A. W. Shepherd and S. Farolfi, *Export crop liberalization in Africa: a review*, FAO Agricultural Services Bulletin, Rome, 1999). More research on this issue would seem useful.

D. Changes in international market structures

1. Changes in the minerals, metals and oil sectors

18. Since most mineral and metal products are highly standardized and since producers cannot affect prices (at least, for metals quoted on terminal markets), production costs are the main, or indeed in many cases the only, determinant of competitiveness. Accordingly, investment decisions are usually taken on the basis of production costs relative to the rest of the industry. An industry-wide rule of thumb is that a particular project will be approved if it has projected operating costs that fall within the lowest industry quartile.

19. The location of production facilities in the minerals and metals industry is by and large determined by the location of ore deposits. Moreover, lead times are very long and the industry is capital intensive. Accordingly, changes in the geographical structure of the industry take place only slowly,[4] as new production facilities are added and existing ones close due to the depletion of deposits or adverse production cost developments. Changes in production shares among companies occur mainly as the result of corporate mergers and acquisitions, and over the past few years, a number of major mergers have taken place in the industry. The mergers have, however, not affected the nature of competition in the industry. Nor have they had more than a marginal effect on the degree of concentration. Within the minerals and metals industry as a whole, companies have diversified their activities upstream or downstream, but unlike the situation with respect to agricultural commodities, there are no indications of a general trend towards upstream vertical integration (though of course, historically, the minerals and metals industry is more vertically integrated than agriculture).

20. Over the longer term, the trend with respect to industry structure can be described as one of a return to core interests, characterized by the exit of non-mining companies, particularly oil companies, from the industry and by a reduced degree of horizontal diversification within mining companies. It is possible that these trends may eventually lead to a higher degree of concentration of production in a small number of producers, the competitive advantages of which are based principally on technological factors and the size of their capital base. This is already happening in the oil sector, where the landscape is changing fast. In less than a year, from August 1998 to March 1999, one saw more than US$ 200 billion in mergers and takeovers.[5]

21. An important development which has taken place particularly over the last decade is the opening of many developing countries and countries in transition to foreign investment in minerals production. As a result of technological as well as policy and legislative changes, investment in exploration and development of mineral deposits, which in the 1980s tended to be concentrated in Australia, Canada and the United States, has become more evenly distributed, with a large share of new investment being directed to Latin America and increasing shares of exploration expenditure going to Latin America and Africa.

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[4] Except perhaps in response to environmental pressures; in the United States of America, most of the secondary lead smelters were closed in 1998 as a consequence of the Clean Air Act.

[5] Major mergers from August 1998 to March 1999: BP-Amoco, US$ 50 billion; UDS-Phillips, US$ 8 billion; Total-Fina, US$ 40 billion; Exxon-Mobil, US$ 80 billion; Nippon-Mitsubishi, US$ 3 billion; BP Amoco-Arco, US$ 28 billion. Many medium- sized and small firms have also merged or been taken over. See Nick Black, "Impact of a changing oil industry on the African oil sector: the winners and the losers", paper prepared for the Fourth African Oil Trade and Finance Conference, UNCTAD, Windhoek, Namibia, 27-30 April 1999.

22. Another important development, which would be expected to have some influence on the structure of the industry over time, is the reduction in the number of "junior" companies. These companies, which are mainly active in the precious metals industry, have traditionally played an important role as finders and developers of new ore deposits. Their operations are usually financed through the stock exchanges in Vancouver and Toronto in Canada. Once a junior company has identified a commercial deposit and carried out initial development work, the deposit is usually sold to larger corporations with better financial and technical resources. Following the Bre-X incident[6] and the fall in metals prices, it has become increasingly difficult for junior companies to raise the equity capital required to finance exploration activities, and a large portion of them have ceased operations.

23. As in the case of most agricultural commodities, the role of traders with respect to mineral commodities has diminished (but unlike agricultural commodities, the pressure towards this change has mostly come from producers, not users). The increased sophistication of producers with regard to the management of price risks, partly resulting from the growing importance of structured finance arrangements for mineral investment, has played a role. While traders still perform an important role as intermediaries for minerals and metals which are not quoted on terminal markets, their importance has diminished for these commodities as well. This is the result of increasingly exacting requirements as regards product specifications and timeliness of deliveries, factors which favour direct contacts between producers and consumers. Nevertheless, giant trading companies still account for a large part of world trade of some minerals and metals. As has happened in agriculture, at least some of these trading companies have been strengthening their market position by becoming more involved in metals processing operations. For example, Swiss-based Glencore, which is reported to account for two-fifths of world trade in bauxite, alumina and aluminium and for one-tenth of global zinc trade, has become very actively involved in metals processing worldwide. Apart from obtaining control over steel mills and aluminium, zinc and copper smelters, traders have also made efforts to provide a complete package of commodities to their clients, offering for example not only iron ore to steel mills, but also coal (leading to a process of concentration of trading houses across minerals and metal sectors, similar to that described for agriculture below).

2. Changes in agriculture

24. In agriculture, as in the minerals sector, the role and functions of traders have changed. Buyers and sellers can find each other directly now, so if traders wish to survive, they need to perform more than a mere intermediary function: they need to provide value-added services. The information advantage of traders has strongly eroded, which puts their profit margins under pressure.[7] In the words of a coffee trader: "In the old days, it was possible for a trade house to obtain information on supply fundamentals days, weeks or months before it became general knowledge, giving it the ability to profit on the terminal market. These days it seems that everyone knows everything."[8] Of course, much of the market information which is now widely available is useful only if combined with proper analysis. Confident of their analytical skills and under pressure from the

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[6] Bre-X was a junior mining company carrying out exploration for gold in Indonesia. Highly positive reports of exploration results, according to which the deposit found by the company corresponded to a major share of the world's gold reserves, resulted in an explosive rise in the price of the company's shares. In early 1997, the prospective buyer of the deposit found that the reports were without basis. The event undermined confidence in junior mining and exploration companies.

[7] John Pugsley, "Looking beyond commodities", *Trade & Forfaiting*, December 1998/January 1999.

[8] Bernard Benecke, "The past, the present, the future: low coffee prices and the international trade house", paper presented at the Sixth International Coffee Week, San Jose, Costa Rica, 15-18 November 1992.

declining margins on normal trade, quite a few trading houses have been tempted increasingly to speculate on future market movements.[9]

25. Nevertheless, the decentralization of the production, export and import of commodities, against the background of the overall erosion of credit quality of developing countries and countries with economies in transition, has created opportunities for traders willing and able to take risks. Size is of definite advantage when taking on risks.

26. The need for traders to provide value-added services, and to be able to take significant risks, has had an influence on the structure of the trading community. To provide value-added services, the trading house has either to be very large, or to act as a specialist in a narrow area (defined by product and/or geographical zone). The large, diversified trading houses have a turnover larger than the GDP of many, if not most, of the countries they are trading with. Their size gives them access to cheaper insurance, finance and freight, better information, more risk-taking capacity, and more possibilities for arbitrage between their various transactions. On the other hand, trading companies benefit from being nimble and able to react fast; this requires a small number of layers of management, and little bureaucracy. In the past, small traders were disadvantaged because in order to have all relevant market information, one had to build up a network of offices and agents around the globe, because personal contacts were essential for getting information. Now, the growth of the Internet and the wider availability of Reuters and similar news vendors means that this information has become much more readily available. Niche market players are thus likely to continue thriving.

27. The prevailing sentiment among traders and others involved in commodity trade is that the concentration among traders is increasing in response to narrower margins, and there are some indications in this direction. For example, in 1980, there were more than 30 trading houses trading cocoa in London, now there are fewer than 10. There have been quite a few mergers and takeovers among trading houses. For example, Cargill, which had already bought several trading houses with a large role in the cotton, coffee and cocoa markets in the 1980s, took over Continental Grain in 1998. On the other hand, many of the changes have involved a reshuffling among trading houses. For example, in 1995, three trading houses still accounted for some four fifths of world cocoa trade, but instead of Gill&Duffus, Berisford and Sucden (which were principally specialized in the cocoa and sugar trade), the companies that dominated were Cargill, ED&F Man, and Phibro (with a widely diversified range of trading interests). Some estimates of the role of trading houses in world trade in the 1990s give lower market shares for major firms than the ones reported in table 2. For example, the six largest companies active in coffee trade (dominated by two roasters, KGF/Jacobs and Nestlé, followed by four trading companies, Neumann, Volcafé, Cargill and ED&F Man), were estimated to account for three-quarters of world coffee imports, less than the share of the six largest companies in the early 1980s. In 1994, the six largest cotton companies were estimated to account for only one-third of international cotton trade. It is, of course, not unlikely that this discrepancy is due to an overestimate of companies' roles in the early 1980s.

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[9] Note that they cannot do much more than speculate. Arbitrage possibilities have largely disappeared with the growing efficiency of markets, while successful manipulation has become close to impossible. For example, when a large trader tried to squeeze the cocoa market in the mid-1970s, he had built a position of 30,000 tonnes. An attempt by another trader in 1996 involved a position of more than half a million tonnes (and was still without success). See Olivier Lindeman, "Trends in structured trade and commodity finance", paper presented at the Forum on Structured Commodity and Trade Finance, IBC, Amsterdam, December 1997.

Table 2
World market shares (special trade agreements excluded)
of major trading companies around 1980

Commodity	Market concentration	Companies
Wheat, maize and soybeans	6 companies accounted for 85-90 %	Cargill, Continental, Louis Dreyfus, Bunge & Born, André, Toepfer
Coffee	6 companies accounted for 85-90 %	Rothfos, ACLI (in 1983 acquired by Cargill), J. Aron, Volkart, Socomex, ED&F Man
Sugar	4 companies accounted for 60-65 %	Sucden, Phibro, Tate&Lyle, ED&F Man
Bananas	3 companies accounted for 80 %	United Brands, Castle&Cook, Del Monte
Cocoa	3 companies accounted for 80 %	Gill&Duffus, Berisford, Sucden
Tea	3 companies accounted for 85 %	Unilever, Associated British Foods, Lyons-Tetley
Cotton	8 companies accounted for 85-90 %	Cargill, Volkart, Mcfadden/Valmac, Dunavant, Tokyo Menka Kaisha, Sumitomo, Bunge&Born, Allenberg
Diamonds	1 company accounted for 80 %	De Beers/Central Selling Organisation

Source: Various UNCTAD Industry and market structure studies, 1980-1984.

28. Commodity trading houses now, compared to two decades ago, can be characterized as fewer, bigger, more diversified across the range of commodities, and more vertically integrated upstream to the farmers' level and downstream in transport and processing. But separate from this concentration process among traders, traders as a group have lost market share to users - such as roasters in the case of coffee, grinders in the case of cocoa, and supermarket chains for a range of commodities. In any case, where there has been a concentration among traders, it has gone hand-in-hand with a concentration among users. For example, six manufacturers account for more than half of global chocolate sales. Moreover, there is a growing trend towards concentration at the retail level: in most European countries, the five largest supermarket chains have a market share of more than 50 per cent. These supermarket chains are integrating backwards, sometimes through investments, but more commonly through the development of networks. Among other things, they are increasingly buying directly from exporting countries, at times in cooperation with each other through a central purchasing organization (which increases their bargaining power vis-à-vis dispersed commodity producers).[10]

29. Some argue that the move of trade houses into procurement at origin and into distribution is a defensive reaction to the declining margins in international trade: as world markets grew increasingly competitive and efficient, they went into less efficient markets. For example, one sugar expert noted that "some (...) go so far as to question whether traditional trade houses still have a role to play in the world sugar market. And if they do, whether they can still make any money doing it. There is a growing feeling among traders that the answer to both questions is "No".[11]

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[10] For example, 11 supermarket chains in Europe created the Associated Marketing Service (AMS) in 1992, for joint procurement activities. AMS operations include, for example, the purchase of green coffee for the roasting facilities of these supermarket chains (which produce for their private labels).

[11] Jonathan Kingsman, "The changing role of trade houses in the world sugar economy", *FO Licht's International Sugar and Sweetener Report*, Vol. 131, No. 5, 5 February 1999.

30. Traders have increasingly gone into new logistical services and have invested in physical assets. As to the services they provide, they have entered into warehousing and distribution, down to the wholesale level, and have become involved in local purchasing. As a result, these markets have also grown more efficient, to the benefit of farmers and consumers. However, the playing field is not level for local players. The large trading houses get much of their funds from institutional investors (placements of hundreds of millions, or even a billion US dollars or more, are not exceptional). The cost of capital to them is therefore very low, compared to what local traders (even the ones with good track records) have to pay. As to physical investments, traders have invested in assets ranging from port facilities and warehouses to processing plants, which was often made easy by the prevailing privatization trend. However, their inroads into these new sectors have generally been successful only if the new assets allow some control over the financing of transactions - this has typically been the case for tolling (toll-refining), a growing phenomenon in international trade. Some trading companies found that they did not have the wherewithal to invest in these new areas, while there was no future in continuing what they were doing; thus, they converted into agents.

31. What does the concentration among trading houses mean for the prices paid to producers and the prices charged to consumers? A recent study found indications of "unfair trade".[12] When "world prices" (defined as the CIF, i.e. import prices in developed countries) increase, the increases are passed on to domestic wholesale and consumer prices. If world prices decrease, wholesale and consumer prices are not reduced. The same asymmetry could be found between wholesale and consumer price changes. Import taxes as well as domestic logistics costs have fallen, so the only factors that can explain this tendency are the relative weight and growth of other marketing and distribution costs in the value-adding process beyond the import price, or the market power of intermediary companies. There are some methodological problems with this study, but its findings clearly point to the need for more research in this area.

E. Meeting the exigencies of the market place

32. The final buyers have moved to the top of the marketing pyramid - to a large extent, they rule the market. Among other things, this means there is little room for amateurism in today's international market place. Buyers tend to be rather unforgiving towards sellers who fail to meet the required quality standards, the agreed delivery date or the expectations in terms of contract services (such as a prompt reply to buyers' concerns). Unfortunately, many sellers are handicapped by their countries' weak infrastructure and excessive bureaucracy. In such cases, sellers have little choice but to create a system to overcome these weaknesses, using a variety of tools and modalities to link producers and processors to the international market.

33. Buyers are becoming more demanding in terms of quality standards (which have started to include requirements relating to the methods used for production and processing). Among other things, niche and gourmet markets are increasing in importance, as is the market for organic foods. In minerals and metals, buyers often specify in detail which product characteristics they desire. Farmers as well as mineral processors are having to make more of an effort to produce exactly what buyers require, with a production process that is acceptable to them, and providing the products at the time they want it.

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[12] Jacques Morisset, "Unfair trade? The increasing gap between world and domestic prices in commodity markets during the past 25 years", *The World Bank Economic Review*, Vol. 12, No. 3.

34. This growing importance of buyers is not unique to agriculture. In metals trade as well, traders find that their clients have become choosy about contracts: annual contracts with regular shipments, based on London Metals Exchange prices, used to be satisfactory; for the last decade, buyers have wanted to choose between annual, biannual or quarterly contracts, between regular shipments and shipments on request, and between several different ways of paying, including countertrade. More demanding requirements as regards the timeliness of deliveries have favoured the establishment of closer direct contacts between producers and consumers of mineral commodities.

35. As illustrated by the increasing (re-)exports of tropical beverages and spices from non-producing countries, consumer demand is increasingly directed towards branded products, which are perceived to meet their quality requirements. The interest of consumers in quality products gives opportunities for those willing and able to invest in the production process and to incorporate the image of quality in a brand. Branded products carry relatively high margins compared to non-branded ones, and the growing number of consumers who buy their products from supermarkets is increasing the market for branded products. In developing countries and countries with economies in transition, in order not to lose the brand name benefits to established Western companies, Governments need to create the conditions for local brand names to develop. This implies that they should promote the growth of regional markets, to develop regional brands, as one important policy option. This means not just the reduction of tariff and non-tariff barriers, but also the harmonization of commodity-related regulations.

F. Conclusion

36. The changes described in the previous sections all operate together, moving commodity production and trade into a new era. The trends can be summarized as follows:[13]

(a) A new direction for public agricultural and mining policy. Government control over and financial support for farmers is being reduced; and the same applies to minerals production. In many developing countries and countries with economies in transition, this is quite a drastic shift (in quite a few cases, the reduction in controls considerably reduced the burdens on producers, but often this did not compensate for the reduction in financial support); in developed market economies the process has been more gradual;

(b) In particular in the case of agricultural commodities (this has never been a very important factor for minerals or fuels), likelihood of tariff and non-tariff trade barriers being much further reduced in the years to come, through bilateral and multilateral trade agreements. This will increase competition between farmers: developing country farmers will no longer be competing just with farmers in their own countries, but with farmers worldwide, many of whom enjoy substantial government support. If agricultural reform leads to a reduction in such support in the developed countries, developing countries may actually benefit from an opportunity to compete in a less distorted world trading environment;

(c) The increased influence of developments in technology on agricultural, minerals and

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[13] Based on Joseph B. Dial, "Managing change in agriculture: are you ready for the 21st century?", UNCTAD, *New strategies for a changing commodity economy, the use of modern financial instruments*, 1998.

oil sector development; in particular, the development of a global information system (through the Internet), satellite technology, sensors (which indicate the best time for agricultural procedures, including harvesting), research on plastics and composites, and biotechnology;

(d) Consumers (including those who use metals as inputs for the production of manufactured products) becoming more demanding, and positioning themselves as leaders in the marketing chain.

37. As an effect of the previous four trends, new business models are being developed. A global logistics framework is already common for the production and trade of manufactures, and such a system is now developing for commodities. Farmers are being integrated into the supply chain, through contract farming arrangements or in less formal ways while processors are linking up with their buyers. Such supply chains enable farmers to produce exactly what the consumers want, and also allow credit to flow. Farmers who are left out from this trend towards supply chains, and who continue producing bulk commodities, can expect to continue seeing their margins fall. In contrast, farmers who manage to become part of the supply chain will be able to improve their income levels - albeit at the cost of reduced flexibility.

38. These new business models require, among other things, a certain measure of discipline among exporters to ensure that the poor performance of one does not destroy the reputation of all. In agriculture, this is a major reason for exporters to organize themselves; Governments could delegate a certain authority to these organizations, for example with respect to minimum quality standards for exports and the licensing of agreed exporters.

39. Exporters and, indeed, local processors, traders and producers also have an interest in organizing themselves in face of the changing roles and functioning of international trading houses and buyers. The growing penetration of these international entities into national markets exposes exporters and local traders to a new source of competition, which may be to the benefit of farmers - if they are not in turn confronted with a new powerful oligopsony which is free to take their products at whatever prices it feels suitable. Although these local players depend to a large extent on the willingness of the Government in providing them with an enabling framework (for access to information, credit, price risk management services and the like), through self-organization they can improve their capacity to analyse market possibilities and understand modern marketing and financing methods.

Chapter II

CHANGES IN PRICE FORMATION SYSTEMS

A. The increasing speed of price adjustments to market developments

40. The opening of economies has clearly led to welfare gains, but just as clearly has made countries more vulnerable to external shocks. As argued on several occasions by UNCTAD and now seemingly also accepted by other international organizations, countries should not fully liberalize their financial flows until the local banking sector is sufficiently well managed. Exposure to fickle short-term capital flows can easily destroy weak banking systems, as the South-East Asian experience has shown. However, even if developing country Governments have prudent financial regulations in place, the vulnerability of their commodity sectors to shocks remains relatively high, because *de facto* these are part of the world economy. Shocks move fast from one geographical region to the other, and across sectors, through different mechanisms, affecting the short-term and even the longer-term viability of the production of commodities in various countries.

41. To give some examples, based on experiences in the recent past:

(a) Strong falls in financial markets can put investment funds under financial pressure, forcing them to close out some of their positions on stock and futures exchanges to retain the remaining positions. As commodities are generally not central to the strategies of these investment funds, they are relatively likely to close out their commodity positions first, which will affect commodity price levels - generally downward, as investment funds tend to have long positions.

(b) A fall in oil prices because of a sudden drop in demand in South-East Asia can reduce the Russian Federation's export earnings, leading to a fall in the rouble, which reduces the production costs of many of the commodities produced in the country - leading not only to higher oil exports, but also higher exports of metals; this leads to lower metals prices, which in turn affects Latin American and other exporters.

(c) Economic problems in Brazil can lead to a devaluation of the real, making it relatively profitable for sugar producers to export rather than to sell their sugar domestically and as Brazil is a major sugar producer, this depresses sugar prices to levels previously thought impossible. However, to the extent that production costs, in US dollars, are permanently shifted to a lower level because of the adjustment in exchange rate, prices will remain at historical lows, jeopardizing the viability of sugar production in several countries.

42. This exposure to external shocks is a largely unavoidable side-effect of the process of the globalization and liberalization of markets. However, the magnitude of shocks and the vulnerability of actors to these shocks would appear to be amenable to policy actions. Such policy actions include the strengthening of financial systems and the creation of a sound, predictable policy framework.

43. The speed of price adjustments is different from commodity to commodity, and may be lower for metals and minerals than for agricultural products. Relative production costs are the main determinant of competitiveness in the international minerals and metals industry. As a result of companies' efforts to position themselves on the lower portion of the industry cost curve, these cost curves have tended to become flatter, with a large portion of the global production capacity situated

at roughly the same level. The flatness of the cost curve means that it has become more difficult to identify the marginal capacity, i.e. the facility that would be expected to be the first one to close down when prices fall. Moreover, since exit barriers are high, even for temporary closures, as a result of high capital costs, producers have strong incentives to continue producing at high rates of capacity utilization. Accordingly, a "waiting game" is encouraged, where producers wait for each other to undertake cuts in production. As a result, it takes longer for markets to reach a balance between production and consumption at lower price levels. When prices eventually rise, production usually catches up quickly as production capacity is brought back into operation. The development of prices of several metals over the past two decades shows that price peaks have tended to become shorter in duration while periods of low prices have become relatively longer. The focus on relative costs also means that new investment is sometimes undertaken with little regard to the overall balance of supply and demand, since producers assume that as long as their production costs are within the lowest industry quartile they will be able to survive price troughs. Consequently, a surplus of capacity may develop easily, although investment in new projects is often canceled or delayed during periods of low prices for cash flow reasons. The influence of the industry cost curve on producer behaviour in recession is illustrated by the difference between the aluminum and copper industries in recent years. The industry cost curve for aluminum is generally considered to be considerably flatter than the corresponding curve for copper. Whereas copper producers have responded to falling prices with significant production cutbacks, the producer response in the aluminum industry has been relatively muted and cutbacks have been much smaller relative to total production capacity.[14]

44. The present crisis provides an illustration of the consequences of this behaviour on the part of producers. While countries in Asia that were first affected by the crisis have accounted for a major share of the increase in consumption of minerals and metals over the past decade, their total share of world consumption has remained relatively small, with the exception of Japan. Accordingly, overall world consumption of minerals and metals has been affected only to a limited degree by the Asian crisis, particularly since economic growth has been relatively high in developed countries accounting for most minerals and metals consumption. However, the fall in Asian demand was sufficient to significantly turn the balance in most metals markets. In theory, the limited fall in demand could have been offset by a correspondingly limited cut in production. In practice, however, given the exit barriers and the flatness of industry cost curves, production cutbacks were late and insufficient in size. Since producers were able to continue producing at almost the same rate as before and still find customers, there was little incentive to cut production. As a result, the fall in demand from Asian countries led to a fall in prices that could appear disproportionate. Given the global nature of minerals and metals markets, the fall in prices affected all producers. While the fall in Asian demand might be expected to have a differential impact among producers depending on the historical importance of exports to that region, the differences among exporters do not appear to have been significant. The reason for this is, of course, the absence of product differentiation, which means that products from different producers are perfect substitutes. Adjustment to the crisis on the part of producers seems to have mainly taken the form of postponement of investment expenditure and drastic cutbacks in exploration.

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[14] Alan Heap, "Cyclical and structural impacts on producers", paper presented at the Eighth Annual Meeting of the Mineral Economics and Management Society, Ottawa, 15-17 April, 1999.

B. The importance of reference prices

45. There have been no significant changes in pricing practices for mineral commodities since the 1980s, when the introduction of price quotations for aluminum and nickel on the London Metal Exchange (LME) led to major changes in the pricing practices for these two metals away from the producer list prices which prevailed until then. The same applies to oil since the mid-1980s, when futures contracts and pricing based on these contracts had become predominant.

46. In contrast, in agriculture, liberalization (both for domestic and for export markets) means that domestic prices are increasingly correlated with international ones, giving those involved in the commodity sector more latitude in the pricing of their products and enabling them to manage their exposure to price risks, at least if a relevant futures market exists. For other commodities, agricultural liberalization is leading to a growing need for new mechanisms for price discovery, in particular at the national and regional level (see box 1).

Box 1
The importance of a sound pricing mechanism
- the case of tropical hardwood plywood

For many years, the association of Indonesian plywood producers (APKINDO), which dominated the plywood market, set price levels. Other exporters used the APKINDO price as a benchmark, and by underselling this price, managed to increase their market share from 10 per cent in 1990 to 35-40 per cent in 1997. Faced with this increasing competitive threat, APKINDO started competing on price, reducing its prices to regain market share. This had little success; other exporters simply followed, and the result was a downward price spiral. The Asian crisis, starting in the summer of 1997, only reinforced this process. The disbanding of APKINDO in mid-1998 also did not help, as Indonesian exporters started vying for hard currency earnings. Prices reached a level much below the production costs of most plywood manufacturers.

Prices were pushed down so far partly because there was no organized commodity exchange where speculators could compete with buyers in purchasing futures contracts and where sellers could optimize their pricing behaviour. The exchange clearing house would also have helped to protect sellers against unscrupulous behaviour by buyers, which became all too common in the period of falling prices. For these reasons, several parts of the plywood industry support the development of a new plywood futures exchange in South-East Asia.

Source: Tang Seng Hoek, "Tropical hardwood plywood, the need for market transparency and a formal price formation mechanism", paper prepared for the Expert Meeting.

Chapter III

SOME POLICY IMPLICATIONS AND QUESTIONS

47. As has been described in the previous chapters, the growing concentration among international trading houses, and their penetration into procurement and distribution activities, is largely a defensive reaction to the fall in margins for their traditional trading business, which in turn is the result of widening access to information and the growing efficiency of markets. This does not imply that Governments have no need to worry about these trends. Rather, Governments need to ensure that their local markets become transparent and efficient too, providing equal opportunities to the country's farmers, processors and traders. The main orientations of such a policy would include improving market transparency; enhancing information flows to local operators, and in particular the capacity of these operators to analyse this information; providing a sound, stable policy environment and legal and regulatory framework; stimulating the emergence of support services; and enabling access to modern marketing, risk management and financing instruments.

48. There are different ways in which Governments can address the needs of farmers and others active in the commodity sector in a new, liberalized environment. Firstly, Governments (and international financial institutions) need to bear in mind that, after years of heavy government intervention, new market institutions do not emerge from one day to the next; rather, they need to be promoted and nurtured. For this, Governments need to create an enabling environment and provide direct support. In many cases, if internal resistance to change does not make their abolition unavoidable, traditional interventionist government bodies can provide some of the required framework. In general, this may include the provision of market and price information, but more specialized services are also a possibility. For example, in the Philippines, faced with a sluggish response of banks in providing warehouse-receipt-based finance, the NFA is offering an advance payment to farmers who deposit grains in its warehouses; it is also integrating this system into its electronic trading network described above. In Mexico, in the face of a weakly developed brokerage network in rural areas, a government agency, ASERCA, is offering farmers and processors options traded on United States futures exchanges, so that they can protect themselves from price fluctuations (ASERCA packages the products into existing credit programmes to make them more easily understood).

49. Secondly, the development of a domestic market can prepare farmers and other local operators for the increasingly sophisticated needs of the international market place. Improving market transparency and the transparency of laws and regulations, improving information and price discovery systems (including commodity exchanges, where feasible), creating a better awareness of quality standards, stimulating the development of support services (such as inspection companies, warehousing operators, and banks able to provide efficient rural finance and risk management services), and improving rural infrastructure are all parts of the necessary policy package. Regional cooperation is very important to allow economies of scale in freight and reduce transport costs, improve information flows, and rationalize quality standards, which reduces logistics costs.

50. As regards the market power of domestic traders compared to international trade houses, governments clearly have to make an effort to make the playing field more level and equitable. This again includes measures to improve market transparency (including through wider use of the Internet), but very importantly also the improvement of the capacity of local banks to support the

provision of structured commodity finance, in collaboration with international banks. In the words of President Museveni of Uganda: "The way forward is (...) to access finance from international capital markets through the mechanism of structured commodity finance. (...) We, in sub-Saharan Africa, (...) have no choice but to adopt structured commodity finance in order to join the players in international commodity trade."[15]

51. The international community should support such actions, including by direct advice and support (with a particular focus on least developed countries), and by doing more fundamental background research and analysis on the role of international trading firms and related industry and market structure issues.

52. There are a number of areas which are important for policy formation where the available information would so far seem inconclusive; experts may wish to address such issues, and determine whether they require more research and analysis (and by whom). These include:

(a) What is the real impact of better information on bargaining power? Are all actors able to use better information to obtain better prices or marketing conditions, or does this apply only to some? Are there certain external conditions that need to be met in order to make information useful? What types of information and what distribution mechanisms have the best impact?

(b) Is the improvement of farmers' prices, relative to export prices, only a temporary phenomenon, disappearing with a growing concentration at the trading level? If there is indeed such a pressure on farmers' prices, what can be done about it?

(c) Is the part of the world market price benefiting the exporting country indeed lower now than it was before the abolition of government marketing boards - or was this only a temporary phenomenon, limited to a period of export sector disarray? If it was not temporary, what can be done to improve the value retained at the country level?

(d) How strong are the comparative advantages of the giant trading houses - taking into account, for example, their access to finance at terms unlikely to be equaled by any other type of firm active in commodities? Even if the domestic conditions become optimal for local players, do the comparative advantages that they have give them a good basis for competing with international traders?

(e) What explains the seemingly asymmetric reaction of wholesale and consumer prices to import price changes (if import prices rise, so do the other prices; if they fall, the other prices do not react)?

(f) What is really happening with quality premiums? Can one make any generalizations, or are the differences between commodities too large?

(g) Are there good policy "shortcuts" which enable the Government to "isolate" commodity firms from a generally unfavourable policy, legal and regulatory framework - temporary systems

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[15] Keynote speech to the structured finance segment of UNCTAD's Partners for Development Summit, Lyon, France, 11-14 November 1998.

which allow the commodity sector to function more or less well while the general environment is being improved? And what does this imply for the sequencing of policy actions? How relevant are the examples of the NFA in the Philippines or ASERCA in Mexico for other countries?

(h) Are there any actions specific to the commodity sector that could reduce the severity of shocks and the vulnerability of commodity sector actors to these shocks?